



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/731,740	12/09/2003	Mark J. Hampden-Smith	41890-01674	5116

7590 11/02/2005

Marsh Fischmann & Breyfogle LLP  
Suite 411  
3151 South Vaughn Way  
Aurora, CO 80014

EXAMINER

HAILEY, PATRICIA L

ART UNIT	PAPER NUMBER
----------	--------------

1755

DATE MAILED: 11/02/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b> 10/731,740	<b>Applicant(s)</b> HAMPDEN-SMITH ET AL.	
	<b>Examiner</b> Patricia L. Hailey	<b>Art Unit</b> 1755	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 05 August 2005.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-5, 9-23 and 47-49 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-5, 9-23, and 47-49 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |   |   |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                        | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)    | Paper No(s)/Mail Date. _____  |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____   | 6) <input type="checkbox"/> Other: _____                                    |

Applicants' remarks and amendments, filed on August 5, 2005, have been carefully considered. Claims 6-8 have been canceled, and claims 47-49 have been added.

Claims 1-5, 9-23, and 47-49 are now pending in this application.

Support for the amendment to claim 17 and for new claims 47-49 can be found in the Specification at page 16, line 28 to page 17, line 1.

### *Maintained Rejections*

#### *Double Patenting*

1. *Claims 1-3 and 9-16 stand, and new claim 47 is, rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-18 of U.S. Patent No. 6,660,680.*

Although the conflicting claims are not identical, they are not patentably distinct from each other because both the claims in the instant application and in the patent are directed to a powder batch comprising electrocatalyst particles comprising a support phase and an active species phase (e.g., instant claim 1). A comparison of the respective sets of claims exhibits overlapping ranges of (1) the average particle size for the support phase, (2) the cluster size of the active species phase, and (3) the surface area of the electrocatalyst particles.

The subject matter as a whole would have been obvious to one having ordinary skill in the art at the time the invention was made to have selected the overlapping

portion of the range disclosed by the reference because overlapping ranges have been held to be a prima facie case of obviousness. In re Malagari, 182 U.S.P.Q. 549.

This double patenting rejection is held in abeyance pending the indication of allowable subject matter.

***Claim Rejections - 35 USC § 103***

2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

3. *Claims 1-5 and 9-23 stand, and new claims 47-49 are rejected under 35 U.S.C. 103(a) as being unpatentable over Itoh et al. (U. S. Patent No. 5,876,867).*

Itoh et al. teach electrocatalyst particles comprising platinum or an alloy thereof (considered to read upon the limitation “active species phase”) supported on a conductive carbon powder (considered to read upon the phrase “support phase”). See col. 2, lines 52-61 of Itoh et al.

The platinum (or platinum alloy) may be supported on the conductive carbon carrier in an amount of 1% to 60% by weight, based on the whole catalyst. See col. 3, line 63 to col. 4, line 5 of Itoh et al.

The conductive carbon powder may be any conductive carbon powder known as carriers for electrocatalysts. As an example, carbon black powders having a BET surface area of from 50 to 1500 m<sup>2</sup>/g and a graphite crystallite diameter of from 7 to 80 Å (0.7 to 8 nm) may be used. See col. 4, lines 16-41 of Itoh et al. While Itoh et al. do not

specifically teach the claimed average size of the “primary support particles” of “about 10 to about 100 nanometers” as recited in claim 1 (or “about 20 to about 40 nanometers”, i.e., claim 17), one of ordinary skill in the art would expect that a difference of, for example, 20 Å, is miniscule, especially when Itoh et al. clearly state that **any conductive carbon powder** known as carriers for electrocatalysts are suitable for Patentees’ electrocatalyst. Further, it would have been obvious to one of ordinary skill in the art to select a conductive carbon carrier having the claimed particle size, since it has been held to be within the general skill of a worker in the art to select a material on the basis of its suitability for the intended use as a matter of obvious design choice. In re Leshin, 125 U.S.P.Q 416.

The platinum (or platinum alloy) has no particular limitations on the characteristics of crystallite diameter or surface area. However, preferable ranges are 15-100 Å and 30-200 m<sup>2</sup>/g, respectively. See col. 7, lines 54-67 of Itoh et al.

Itoh et al. do not teach the specifically claimed ranges of, for example, the particle sizes of the “support phase” and “active species phase”. However, the reference teaches values for these (and other) characteristics that overlap those respectively claimed. The subject matter as a whole would have been obvious to one having ordinary skill in the art at the time the invention was made to have selected the overlapping portion of the range disclosed by the reference because overlapping ranges have been held to be a prima facie case of obviousness. In re Malagari, 182 U.S.P.Q. 549.

*Response to Arguments*

In response to Applicants' arguments that Itoh et al. do not teach the claimed ranges of electrocatalyst particle size and active species phase size, nor teaches values for these characteristics that overlap those claimed, the Examiner respectfully disagrees. Although the instantly claimed average cluster size of the active species phase is not more than 20 nm, the teaching of Itoh et al. of a platinum/platinum alloy crystallite diameter of 15-100 Å (1.5 to 10 nm) is considered to read upon the limitation "not greater than about 20 nanometers". Although the instant claims recite a "cluster size", the claims do not indicate just how many particles are required to obtain a "cluster" — at least two particles, obviously. Thus, a cluster comprising two particles, each having diameters of between 1.5 and 10 nanometers, would read on the aforementioned claim limitation. Further the disclosure by Itoh et al. of "no particular limitation" provides sufficient motivation to determine through routine experimentation the optimal "cluster size", or crystalline diameter.

In response to Applicants' arguments that the "method of Itoh et al. is not capable of forming an active species phase...", it is the Examiner's position that this reference is relied upon for its teachings with respect to the electrocatalyst disclosed therein, not *the method by which the electrocatalyst is produced*. Applicants' claims in their present form are directed to a powder batch; none of the instant claims are method claims, nor are there any process limitations in the instant claims.

With respect to the claimed average particle sizes of the electrocatalyst particles, it is the Examiner's position that because Itoh et al. disclose (1) support particles having a size comparable to Applicants' claimed support particles, and (2) electrocatalyst particles having a crystallite diameter considered to read upon Applicants' claimed "active species phase", then one skilled in the art would readily deduce that, upon combining the support particles and the electrocatalyst particles, one would obtain particles comparable to Applicants' claimed "powder batch", having an average particle size comparable to that instantly claimed.

For these reasons, Applicants' arguments are not persuasive.

### *Conclusion*

Although Applicants have amended claim 17 and added new claims 47-49, the subject matter of these claims did not necessitate a new ground of rejection.

Accordingly, **THIS ACTION IS MADE FINAL**. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date

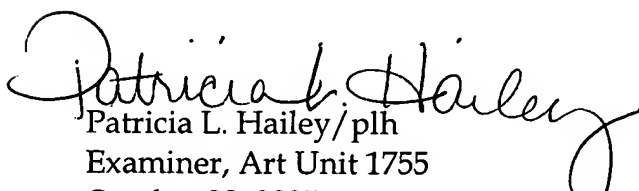
of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

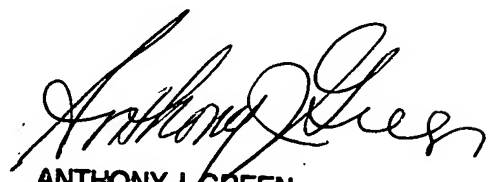
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Patricia L. Hailey whose telephone number is (571) 272-1369. The examiner can normally be reached on Mondays-Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jerry Lorengo, can be reached on (571) 272-1233. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group 1700 Receptionist, whose telephone number is (571) 272-1700.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

  
Patricia L. Hailey/plh  
Examiner, Art Unit 1755  
October 28, 2005

  
ANTHONY J. GREEN  
PRIMARY EXAMINER